Restoration Thinning in the Cedar River Municipal Watershed

duction

ration Thinning is used in patches of small ter trees to accelerate the development of old- h characteristics. Most Restoration Thinning in edar River Municipal Watershed occurs in the , mid-elevation Pacific silver fir (*Abies amabilis*) where our youngest forests are located.

ogical Objectives

- tain or increase tree growth rates
- lerate structural development
- itate future recruitment of large wood
- understory light regimes
- ance understory development and species ity
- ect special habitats
- ect water quality
- d catastrophic losses due to large-scale bances such as fire

rescriptions

- e spacing guidelines with upper diameter limit
- X 15' (194 tpa*) with 5" or 6" dbh** limit
- pacing may vary from 11'-19'
- X 16' (170 tpa) with 5" or 6" dbh limit
- pacing may vary from 12'-20'
- g guidelines and diameter limit interact with pre- sting natural variability to yield variable density atment area
- mon tree species are retained in order to preserve ance diversity
- perimental Prescriptions
- felled trees into small pieces in Unit 9b to accelerate nposition and reduce fire hazard

* per acre, ** diameter at breast height

ring

iance monitoring: Are prescriptions implemented n?

- 1/50th acre plot per every 4 acres treated
- mum 10 plots per Unit

veness monitoring: Do treatments achieve desired al Objectives?

- ple plots
- 002-12 Treatment, 5 Control, remeasure 2007
- 003-16 Treatment, 5 Control, remeasure 2008
- 004- 15 Treatment, 5 Control, remeasure 2009

anagement

- interval between thinning adjacent units to allow for down wood decomposition
- de down wood treatment on all units to create fuel breaks and prevent vehicle caused ignitions and fires
- sive fire patrols during periods of high fire risk
- disturbance
- l resources are conserved

Figure 1. Photo showing the variable forest structure created by Restoration Thinning.

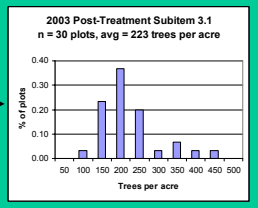

Figure 2. Stand density histogram for 2003 Restoration Thinning Unit 3.1. Densities were calculated from 1/50th acre plots distributed systematically throughout the unit. Note the skewed distribution, indicating variable tree density.

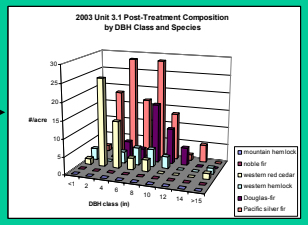

Figure 3. Forest structure and composition following Restoration Thinning in 2003 Unit 3.1. Restoration thinning preserved uncommon species, even small individuals, which would have been eliminated in a normal pre-commercial thinning.

Figure 4. Drawing of the world record Pacific silver fir by Robert Van Pelt. Restoration Thinning treatments are designed to accelerate the development of large, complex old-growth trees, such as the record Goodman Creek tree shown here.

The Restoration Thinning Progression

Pre-Treatment

Figure 5. Typical pre-treatment conditions in restoration thinning units. Very high tree densities, low light environment, and virtually no understory shrubs or herbs.

Figures 6 and 7. Typical conditions immediately following Restoration Thinning.

Post-Treatment: Year 3

Figure 8. Understory reinitiation 3 years after Restoration Thinning treatment: Pacific silver fir seedling and black huckleberry (*Vaccinium membranaceum*).

Figure 9. Vigorous understory vine maple (*Acer circinatum*) and black huckleberry growth three years after Restoration Thinning.

Tree Growth Response to Thinning

Before thinning | After thinning

Figure 10. Increment cores taken from Pacific silver fir trees thinned circa 1984. The forest from which these cores were collected lies just outside the Cedar River Watershed on US Forest Service property. The forest was thinned to approximately 12' X 12' spacing between residual trees (300 trees per acre). On average, the post-thinning radial growth rate increased by 85% (n = 14, 10 year pre- and post-thinning radial growth). All trees increased radial growth rate following thinning (n = 14, min = 20%, max = 160%).